

Claims

1 1. An integrated door lock handle and trim assembly having a retractable  
2 spindle for operating a mortise door lock comprising:

3 a door lock handle having a support shoulder and external threads at the end of  
4 the handle and an axial blind opening in the handle for accommodating a  
5 spring and a spindle;

6 a cover having a base and a door facing outer lip around the base periphery and  
7 an internal threaded through opening in the base which opening is sized to  
8 allow the cover to rotate freely on the handle and the base rests against the  
9 shoulder;

10 a mounting plate sized to fit within the outer lip and having a through opening  
11 with a lip having external threads which are to be threaded with the internal  
12 threads of the cover;

13 a cap nut having a through opening with internal threads which are to be  
14 threaded with the external threads of the handle forming an integral  
15 assembly of the handle, cover, mounting plate and cap nut;

16 an elongated spring disposed within the axial opening of the handle having a  
17 front end and a rear end press-fit into and resting against the end of the blind  
18 opening; and

19 an elongated spindle sized to extend through the cap nut opening, mounting  
20 plate opening and the axial opening in the handle and having a front end  
21 shaped to engage and operate the door lock and a rear end which is  
22 pressing against the front end of the spring;

23 whereas the spindle can be retracted within the axial opening decreasing the  
24 effective length of the spindle enabling the assembly to be used for doors of  
25 varying thicknesses.

1 2. The trim assembly of claim 1 further comprising elongated mounting posts  
2 having an enlarged end held in the assembly with the free ends of the posts  
3 extending axially through openings in the mounting plate.

1 3. The trim assembly of claim 2 further comprising a spring disposed between  
2 the mounting plate and the base of the cover.

1 4. The trim assembly of claim 3 wherein the cap nut has a star shaped opening  
2 which engages the spindle to prevent the spindle from turning.

1 5. The trim assembly of claim 4 wherein the spindle is rectangular.

1 6. The trim assembly of claim 5 wherein the rear end of the spindle has an  
2 axial opening to accommodate an anchor to connect the spindle and anchor  
3 together.

1 7. The trim assembly of claim 6 wherein the rear end of the elongated spring is  
2 conical so that when compressed the spring collapses to a greater extent than a  
3 conventional spring.

1 8. The trim assembly of claim 1 which is pre-assembled.

1 9. The trim assembly of claim 1 wherein the rear end of the spindle is shaped  
2 to engage the front end of the spring.

1 10. The trim assembly of claim 1 wherein the cover is an escutcheon.

1 11. An integrated door lock handle and trim assembly having a retractable  
2 spindle for operating a mortise door lock is provided comprising:

3 a door lock handle having a support shoulder formed by an elongated extension  
4 of smaller size at the end facing the door with the handle having external  
5 threads at the end of the extension and an axial blind opening in the  
6 extension and handle for accommodating a spring and a spindle;

7 a cover having a base and a door facing outer lip around the base periphery and  
8 an internal threaded through opening in the base which opening is sized to  
9 allow the cover to rotate freely on the extension and the base rests against  
10 the shoulder;

11 a mounting plate sized to fit within the outer lip and having a through opening  
12 with a lip having external threads which are to be threaded with the internal  
13 threads of the cover;

14 a cap nut having a through opening with internal threads which are to be  
15 threaded with the external threads of the handle forming an integral  
16 assembly of the handle, cover, mounting plate and cap nut;

17 an elongated spring disposed within the axial opening of the extension and  
18 handle having a front end and a rear end press-fit into and resting against the  
19 end of the blind opening; and

20 an elongated spindle sized to extend through the cap nut opening, mounting  
21 plate opening and the axial opening in the handle and having a front end  
22 shaped to engage and operate the door lock and a rear end which is  
23 pressing against the front end of the spring;

24 whereas the spindle can be retracted within the axial opening decreasing the  
25 effective length of the spindle enabling the assembly to be used for doors of  
26 varying thicknesses.

1 12. The trim assembly of claim 11 further comprising elongated mounting posts  
2 having an enlarged end held in the assembly with the free ends of the posts  
3 extending axially through openings in the mounting plate.

1 13. The trim assembly of claim 12 further comprising a disc spring disposed  
2 between the mounting plate and enlarged pin end and the base of the cover.

1 14. The trim assembly of claim 13 wherein the cap nut has a star shaped  
2 opening which edges of the opening engages the spindle to prevent the spindle  
3 from turning.

1 15. The trim assembly of claim 14 wherein the spindle is rectangular.

1 16. The trim assembly of claim 15 wherein the rear end of the spindle has an  
2 axial opening to accommodate an anchor to connect the spindle and anchor  
3 together.

1 17. The trim assembly of claim 16 wherein the rear end of the elongated spring  
2 is conical so that when compressed the spring collapses to a greater extend than a  
3 conventional spring.

1 18. The trim assembly of claim 11 which is pre-assembled.

1 19. The trim assembly of claim 11 wherein the rear end of the spindle is shaped  
2 to engage the front end of the spring.

1 20. The trim assembly of claim 11 wherein the cover is an escutcheon.